Nutrition Basics

As part of changing my eating habits, I've become quite interested on the subject of nutrition. I can't seem to find a good guide to the subject online, so in the spirit of flailing in public until someone comes to my aid, I thought I'd write up what I think I know. Feel free to correct me or point me to better sources in the comments.

Calories are the basis of eating; they're a measure of the amount of energy a food provides. Your body gets calories from the food you eat and spends them to keep you moving. If you get more calories than you spend, your body stores the excess as fat. If you spend more than you get, your body burns some of the fat it's stored up (for just such an occasion).

Thus the standard advice for losing weight: eat less, exercise more. Eating less brings fewer calories in, while exercising more uses up more of them. Unfortunately, both of these things are quite hard to achieve, because the body seems to regulate them through the use of "set points": your body keeps track of how much fat you have through a chemical called leptin and makes you hungry if you're starting to lose weight. Thus, if you skip a meal in the morning, it'll be sure to make you extra hungry in the evening, so that your overall weight doesn't change.

A similar setpoint seems to operate for exercise. In one experiment, doctors measured how much children moved around with pedometers. Then they tried forcing the children to exercise by giving them a PE class. They found that when kids were forced to exercise at school, they exercised less at home, and ended up doing the same amount of exercise overall. So just as your body seems to make you hungry when you're losing weight and full when you're gaining it, it seems to make you tired when you've burned too many calories and antsy when you haven't burned enough.

Of course, we're not total slaves to such motivations — we can force ourselves when to eat when full or not to eat when hungry, to exercise when tired or to stay still when antsy — but it's worth keeping in mind what we're up against.

Fats have gotten a bad rap, most likely because they share a name with body fat but also, some argue, because they seem lower-class. In truth, however, they're largely just one way to get calories, and a calorie is a calorie no matter where it comes from.

Fats also have effects on **cholesterol**, a key building block for your body's cells. There are two types of cholesterol — known informally as good and bad cholesterol. Good cholesterol consists of tightly-packed proteins of cholesterol in your blood stream, allowing cholesterol to be efficiently transported where it needs to go. Bad cholesterol is less densely packed and its cholesterol ends up sticking in the walls of arteries, clogging them and leading to heart disease. Fats have varying effects on cholesterol. Saturated fats should be avoided: they increase levels of bad cholesterol (although they also increase good cholesterol). Unsaturated fats, however, whether monounsaturated or polyunsaturated, are good: they lower bad cholesterol and raising good cholesterol. *Trans* fats are just the reverse: they increase bad cholesterol levels *and* decrease good ones; it's recommended they be avoided as much as possible.

Often nutrition labels only break out unsaturated fats and trans fats; you have to calculate the amount of saturated fat by subtracting these from the amount of total fat. The goal, remember, is to avoid trans fats whenever possible, avoid saturated fats, and go for unsaturated fats.

Carbohydrates are another source of calories, the kind found in white wheat products, like bread and pasta. **Sugars** are a form of carbohydrate and, in fact, the body breaks down other carbohydrates into simple sugars. The problem with sugars is that they go directly into the bloodstream, spiking your blood sugar level. This in itself is unhealthy, but it's even worse when the level inevitably crashes and you begin to feel hungry again and eat even more.

The exception is with fiber, which the body can't break down. Foods made from whole wheat are high in fiber, so your body takes longer to digest them and the sugar intake is spread out over a longer period of time. Thus while carbohydrates might generally be avoided, whole wheat products (along with fruits and vegetables), include additional nutrients as well as having a safe impact on blood sugar, and are the foundation of a healthy diet.

Protein is a similar essential nutrient, allowing the body to make essential components of muscle and hair and so on. If you don't get enough (about 9 grams of protein for every 20 pounds), the body begins breaking down its tissues. (Eating far too much protein, however, as people in low-carb diets do, can be unhealthy as it absorbs calcium from your bones.) While protein can be found in animal products, whole wheat bread is a also an excellent source — a single slice contains five grams of protein. Unfortunately, the proteins found in grains and vegetables are incomplete, so you either need to get some (complete) animal protein or eat a variety of them.

Calcium is necessary for building bones and teeth, maintaining the heart's rhythmym, and more. Deficiency can lead to weakened bones and fractures. While dairy products contain significant amounts of calcium, they also contain a lot of saturated fat and has been linked to some cancers. Many other foods are fortified with calcium and some vegetables (kale and collard greens, dried beans, and legumes) are also a good source.

Vitamins do all sorts of good things, as well as warding off diseases like scurvy and rickets. They're often added to juices and cereals and can be taken by themselves in a daily multivitamin as well.

For additional information, check out:

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